

IN THE SPECIFICATION:

Please substitute the paragraphs with marked corrections shown below for the indicated paragraphs in the specification.

1. Replace the paragraph beginning at page 3, line 10, with the following amended paragraph:

H. J. Banks and C. J. Waterford, U. S. Pat. No. 5,573,740, disclose a chemical method for generating phosphine based on the reaction of water or water vapor with a metal phosphide. W. Frierel and R. Ehert, U.S. Pat. No. 4,720,380 disclose an ~~amuminum~~ aluminum phosphide formulation for generation of phosphine for pesticidal applications. Both methods produce a dilute, moist phosphine for use as a pesticidal gas. This low concentration, impure gas is unsuitable for semiconductor applications.

2. Replace the paragraph beginning at page 3, line 29, with the following amended paragraph:

Koch, in U. S. Patent No. 5,529, 669 teaches the use of single mode microwave radiation to raise the temperature of a metal catalyst and thereby increase the reaction rate between ammonia and a hydrocarbon containing gas. Koch feeds two gas phase reactants over a microwave-heated catalyst. The product of the gas phase reaction is another gas, hydrogen ~~cyanide~~ cynanide. No phase change or allowances for phase change is taught in their patent. Furthermore no allowances are made for refluxing of reactants to increase the reaction yield of the products.

3. Replace the paragraph beginning at page 4, line 6, with the following amended paragraph:

One major limitation of these inventions is the use of one material (Teflon or glass) as the conduit for exposing the reactants to microwave energy. This limits the ~~type~~ types of reactions which can be carried out. Teflon is limited to temperature below 260 C and glass or quartz is attacked and corroded by hot alkali and some acid solutions.

4. Replace the paragraph beginning at page 5, line 34, with the following amended paragraph:

One feature of the invention is that it addresses the limitation of use of a single material, such as ~~Teflon~~ Teflon or glass, in the microwave heated zone, by the use of composite or multiple (e. g. two) layer microwave transparent conduits which provide a corrosion barrier and mechanical strength at high temperature and pressures. The preferred microwave transparent material in the reaction zone also is capable of sustaining pressures above one atmosphere and is resistant to corrosion from the chemicals within the reaction zone.

5. Replace the paragraph beginning at page 10, line 12, with the following paragraph:

Referring now to FIG. 1, shown is a preferred reactor system of the invention. The reactor includes a reaction chamber tube 1 of a microwave transparent material (e. g. fused silica, silicon dioxide, boron nitride, graphite or Teflon) that is irradiated with microwave radiation from a radiation source ~~including~~ including a magnetron 2 attached to a waveguide 3. This microwave radiation source may, for example, have a frequency of about 0.9 GHz or from about 2.41 to about 10 GHz. The reaction chamber 1 is contained within a microwave reflecting enclosure 4, for instance constructed of an electrically conductive material desirably having a conductivity of at least about 10^{-3} ohm/cm. The enclosure 4 also

preferably has a smallest dimension at least twice the wavelength of the microwave radiation to be employed. At the bottom of the reaction chamber 1 is a high boiling point liquid (HBPL) such as phosphoric acid or silicon oil which absorbs the microwave radiation.

6. Replace the paragraph beginning at page 12, line 24, with the following amended paragraph:

In another embodiment of the invention, the reactor may include an inner, corrosion-resistant microwave transparent tube is concentrically surrounded by a second microwave transparent tube capable of withstanding higher pressures. In this manner, higher pressures of phosphine can be produced safely without corroding the outer tube.

7. Replace the paragraph beginning at page 13, line 7, with the following amended paragraph:

The window can be made thicker and have a smaller area than the microwave transparent tube shown in Fig.1. Both of these factors allow the window to withstand higher pressures than the tube configuration. By this means the temperature and pressure limitations of materials currently used in microwave transparent tubes or conduits in the reaction chamber are overcome. This allows higher pressure gas product to be produced with less concern of materials failure and gas leakage from the reactor. The inside of the reaction chamber can also be coated with a corrosion-resistant coating (e. g. ~~tantalum~~ tantalum or Tefzel), to eliminate contact of the hot fluid with the chamber walls.